



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| | | | | |
|---|-------------|-----------------------|---------------------|------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/607,012 | 06/27/2003 | Charles W. Walker JR. | ARL 03-02 | 4966 |
| 37064 | 7590 | 06/01/2005 | EXAMINER | |
| OFFICE OF COMMAND COUNSEL, U.S. ARMY MATERIEL COMMAND ATTN: AMCCC-B-IP 9301 CHAPEK ROAD FORT BELVOIR, VA 22060-5527 | | | HARLAN, ROBERT D | |
| | | ART UNIT | PAPER NUMBER | |
| | | 1713 | | |
| DATE MAILED: 06/01/2005 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------|--------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/607,012 | WALKER, CHARLES W. |
| | Examiner | Art Unit |
| | Robert D. Harlan | 1713 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 18 April 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 23-28 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-22 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-22 in the reply filed on 04/18/2005 is acknowledged. The traversal is on the ground(s) that there is only one way of make claimed networks. This is not found persuasive because is more than one to prepare PVA and PAMP (i.e. living free radical polymerization and polymerization using a Dupont di-imine catalyst).

2. The requirement is still deemed proper and is therefore made FINAL.

3. This application contains claims 23-28 drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 8 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Applicants recite "a copolymer monomer copolymerized with said monomer." What is "a copolymer monomer"? Please delete copolymer and clarify if the monomer is a second monomer and how it differs from "said monomer." In claim 22, the Applicants recite an improper Markush expression: selected from the group consisting of: a catalyst and a specific binding or recognition moiety for a target analyte. The expression should have the following format: selected from the group consisting of A, B and C. Also, what is the differs between "specific binding" and "recognition moiety."

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-6, 15-18 and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Homma et al., Journal of Applied Polymer Science, vol. 75, pages 111-118 (2000) (hereinafter "Homma"). Homma teaches the introduction of a PVA network in an ionic hydrogel membrane through forming an interpenetrating network as an effective way to improve mechanical strength of the membrane. Homma teaches the preparation of a PVA-PAMPS interpenetration network comprising a bis-acrylamide crosslinker, a free radical polymerization initiator. See Homma, page 12. The membrane was also prepared of a known thickness between glass plates. Thus, Homma anticipates claims 1-6, 15-18 and 20-21.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Art Unit: 1713

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Homma. Homma teaches the preparation of the first polymer, PAMPS, by radical polymerization. Homma provides no data on the degree of polymerization of the AMPS monomer; however, based on the molar mass range of AMPS and the vary degree of polymerization when employing radical polymerization techniques one of ordinary skill in the art would be privy to a wide range of total weight percent of PAMPS. It is the Examiner's contention that the total weight percent would reasonably fall in the range of 2 to 40 total weight percent.

11. Claims 8-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Homma in view of Walker, *Journal of Power Sources*, vol. 110 pages 144-151 (2002) (hereinafter

Art Unit: 1713

"Walker"). Homma differs from the present invention in that Homma does not teach a second comonomer addition to PAMPS or the use of silica. Walker teaches, in analogous art, the preparation of a hydrophilic AMPS-HEMA copolymer membrane and teaches the use silica. See Walker pages 145 and 150. In view of Walker, one having an ordinary skill in the art would be motivated to modify Homma by introducing HEMA because of its effect on water permeability (polymer swelling) and improved mechanical properties. Also, in view of Walker, one having an ordinary skill in the art would be motivated to modify Homma by introducing silica because silica has an effect on conductivity. Such modification would be obvious because one would expect that the use of hydrogel interpenetrating networks as taught by HEMA would be similarly useful and applicable to the hydrophilic copolymers taught in Walker.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert D. Harlan whose telephone number is (571) 272-1102. The examiner can normally be reached on Mon-Fri, 10 AM - 8 PM.

Art Unit: 1713

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David W. Wu can be reached on (571) 273-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Robert D. Harlan
Primary Examiner
Art Unit 1713

rdh